

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-027082**Date Inspected:** 19-Jan-2012**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Jobsite**CWI Name:** As noted below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** SAS OBG**Summary of Items Observed:**

Quality Assurance Inspector (QA) Douglas Frey was at the American Bridge/Fluor (ABF) job site at Yerba Buena Island in California between the times noted above in order to monitor Quality Control functions and the in process work being performed by ABF personnel. The following items were observed:

**13E/PP119.5/E4 Lifting Lug Holes W1 and W2 (Exterior)**

This QA Inspector made random observations of ABF welder Jorge Lopez (ID 6149) performing the Shielded Metal Arc Welding (SMAW) process in the 1G flat position on lifting lug holes W1 and W2 at 13E/PP119.5/E4. This QA Inspector observed QC Inspector Fred Von Hoff measure the pre-heat temperature to verify a minimum of 93.3°C was achieved. This QA Inspector also observed the QC Inspector monitoring the welding and verifying that the parameters were in compliance pertaining to ABF-WPS-D15-1050A-CU. The parameters were recorded as (Amperes=228) utilizing a 4.0 mm E7018-H4R electrode. During in process welding, this QA Inspector noted that the QC Inspector measured the inter-pass temperatures to maintain a heat range below 230°C. This QA Inspector made subsequent observations during the shift and noted that the work was completed on this date and appeared to be in general conformance to the contract specifications.

**13E/PP119.5/E3 Lifting lug holes W2 and W3 (Exterior)**

This QA Inspector observed ABF welder Salvador Sandoval (ID 2202) utilize a propane burner to heat "A" deck lifting lug holes W2 and W3 at 13E/PP119.5/E3 to 93.3° C. This QA Inspector observed QC Inspector Fred Von Hoff employ a 200° F Tempilstik and approve placement of the 20mm insert to make up the B-U4a Complete

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Joint Penetration (CJP) joint. Mr. Von Hoff measured the planar offset with a Bridge Cam gauge and verified the fit-up as acceptable. The welder applied heat to the joint to achieve 93.3° C and this QA Inspector observed the welder secure E7018-H4R electrodes from a baking oven. The welder performed the SMAW process in the 1G flat position as the QC Inspector measured the amperage of the 3.2mm electrodes for the root pass as 125. This QA Inspector made subsequent observations throughout the process and noted the utilization of 4.0mm and 4.8mm electrodes with amperage's of 185 and 280 respectively. This QA Inspector noted the welder grinding and blending the start/stop edges of the welds with a small disc grinder for a smooth transition as the QC Inspector measured the inter-pass temperatures. The parameters at this location appeared to be in general conformance with ABF-WPS-D1.5-1050A-CU.

### 12E/13E/A3 (Interior)

This QA Inspector randomly observed ABF welding personnel Wen Han Yu utilize the Plasma Arc Cutting (PAC) method to remove the backing bar from face "B" of "A3" at 12E/13E on the interior of the OBG. The welder employed the use of scaffolding to access the joint utilizing a "Bug-O" motorized rail system with a magnetic base attached in the (4G) overhead position to operate the PAC system. This QA Inspector noted the use of respiratory masks and proper safety procedures were followed. This QA Inspector made subsequent observations and noted that the work was in progress and appeared to be in general conformance with the contract documents.

### Tower 53M Elevation Mechanical Equipment Pads

This QA Inspector randomly observed ABF welder Eric Sparks perform SMAW in the 1G flat position on 13mm plate steel (mechanical equipment pads), to the façade at the 53M level between the south and the west shafts of the tower. QC Inspector Steve Jensen monitored the welding and the parameters for compliance with ABF-WPS-D1.5-F1200A. The 10mm fillet welds were placed utilizing 4.0 E7018-H4R electrodes with amperage of 210. Due to the conflict of a hatch opening and the path of the weld in two locations, RFI 002702 was submitted. This QA Inspector noted that the work is in progress.

### 12E/13E/D2 Repair (Exterior)

This QA Inspector randomly observed ABF welder Wai Kit Lai performing the back-gouge operation of four (4) ultrasonic rejectable indications on "D2" of 12E/13E located at "Y" 1140 mm: (25 mm wide; 250 mm length; and 21 mm in depth), "Y" 1330 mm: (25 mm wide; 100 mm length; and 10 mm in depth), "Y" 4700 mm: (30 mm wide; 150 mm length; and 9 mm in depth), "Y" 5000 mm: (25 mm wide; 300 mm length; and 10 mm in depth). This QA Inspector observed QC Inspector Fred Von Hoff perform a Magnetic Particle Inspection (MT) of the excavation to determine the soundness of the metal. Upon completion of the testing this QA Inspector verified that no rejectable indications were present.

This QA Inspector randomly observed ABF welder Wai Kit Lai (Welder ID 2953) performing the repair welding operation of ultrasonic rejectable indications as per the SMAW process in the (4G) overhead position on "D2" of 12E/13E. This QA Inspector observed the use of E7018-H4R electrodes and QC Inspector Fred Von Hoff verify that the preheat temperature was at the minimum of 93 degrees C and that the welding parameters (Amps=135) were in accordance with WPS D1.5-1001- Repair. The welding parameters observed at this location

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appeared to be in general compliance with approved WPS and the contract specifications. This QA Inspector made subsequent observations and noted that the work is in progress.

This QA Inspector performed Ultrasonic Testing (UT) on approximately 10% of the welds listed below. These welds were previously accepted by QC Ultrasonic technicians in accordance with AWS D1.5-2002, section 6, table 6.3. This QA observed no rejectable indications at the time of testing. This QA generated a TL-6027 UT report on this date. The completed work observed at this location appeared to be in compliance with the contract specifications.

12E/13E/A2

12E/13E/E1/E2

This QA Inspector performed a Magnetic Particle (MT) Inspection of E1/E2 at 12E/13E on the interior of the OBG. This QA Inspector performed the yoke method in conformance with ASTM E 709 and the standard of acceptance with D1.5 section 6.26. This QA Inspector noted that no rejectable indications were found at the time of testing. This QA Inspector generated a TL-6028 MT report on this date. The completed work at this location appeared to be in general conformance with the contract specifications.

Note: The QAI reviewed the observations and inspection with QA Lead Inspector, Daniel Reyes, written in this report. The issues were noted by the QAI and the QA Lead Inspector concurs with the QA report.

### Summary of Conversations:

There were no pertinent conversations to report.

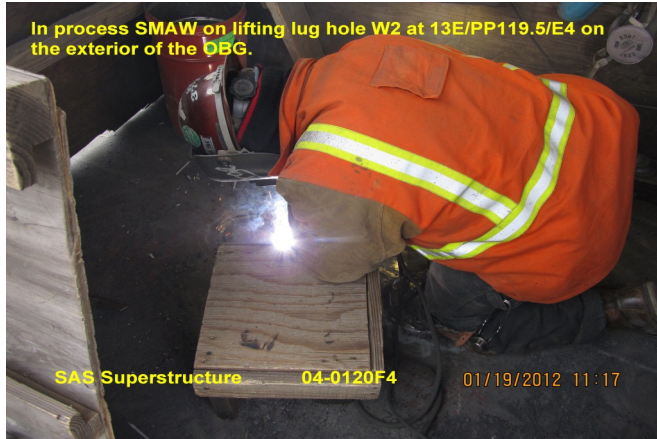


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### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy 510-385-5910 , who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Frey,Doug	Quality Assurance Inspector
<b>Reviewed By:</b>	Levell,Bill	QA Reviewer

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